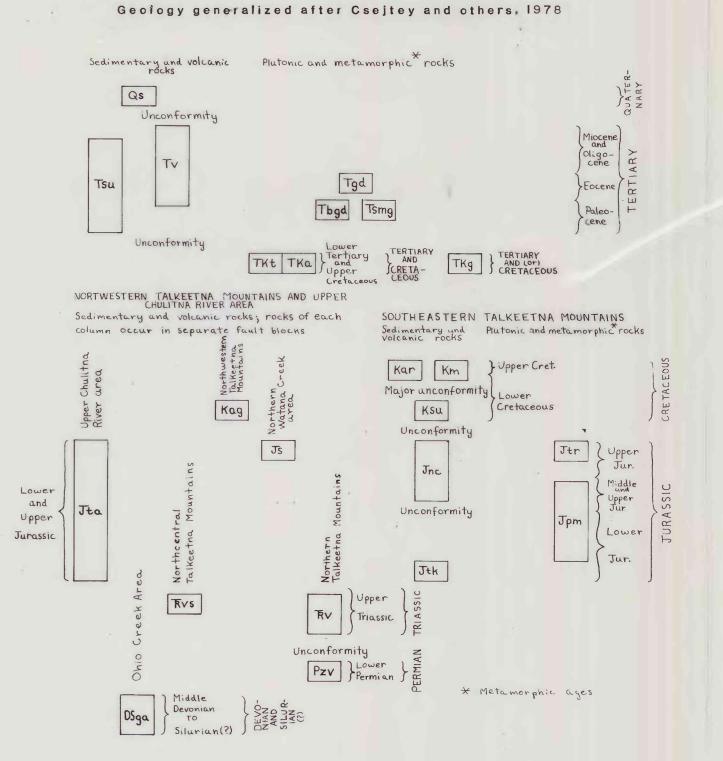
## 78-558J

### Geochemistry-Lead (Pb)

Folio of the TALKEETNA MOUNTAINS Quadrangle, Alaska

### CORRELATION OF MAP UNITS



### DESCRIPTION OF MAP UNITS

- Qs SURFICIAL DEPOSITS, UNDIFFERENTIATED (Quaternary).
- Tv VOLCANIC ROCKS, UNDIVIDED (Paleocene to Pleistocene(?))-Felsic and mafic subaerial volcanic rocks and related shallow intrusions.
- Tsu TERTIARY SEDIMENTARY ROCKS, UNDIFFERENTIATED (Paleocene to Miocene)--Terrestrial, mostly fluviatile strata with a few lignite
- Tgd GRANODIORITE (Eocene).
- Tbgd BIOTITE AND HORNBLENDE GRANODIORITE (Paleocene, in part early Eocene).
- Tsmg SCHIST, MIGMATITE, AND GRANITE (Paleocene intrusive and metamorphic ages)--Migmatitic border zone of biotite and hornblende granodiorite.
- TKt TONALITE (Upper Cretaceous and lower Paleocene).
- TKa ADAMELLITE (Upper Cretaceous and lower Paleocene).
- TKg GRANITIC ROCKS, UNDIVIDED (Cretaceous and (or) Tertiary).

  Kar ARKOSE RIDGE FORMATION (Lower and (or) Upper Cretaceous).
- Km MATANUSKA FORMATION (Lower and Upper Cretaceous).

  Ksu SEDIMENTARY ROCKS, UNDIVIDED (Lower Cretaceous)--Shallow marine sequence of calcareous sandstone, claystone, and massive clastic
- Kag ARGILLITE AND LITHIC GRAYWACKE (Lower Cretaceous)--Intercalated,
- marine, flyschlike sequence.

  Js SEDIMENTARY AND VOLCANIC ROCKS, UNDIVIDED (Upper Jurassic)-Marine sequence of argillite, graywacke, conglomerate, and
  andesitic to latitic feldspar porphyry dikes and intercalated

- Jtr TRONDHJEMITE (Upper Jurassic)
- Jurassic Sedimentary Rocks, Undivided (Middle and Upper Jurassic)

  --Includes Naknek and Chinitha Formations, and Tuxedni Group.
- Jta CRYSTAL TUFF, ARGILLITE, CHERT, GRAYWACKE, AND LIMESTONE (Lower to Upper Jurassic)--Shallow to moderately deep marine, intercalated sequence.
- Jpm PLUTONIC AND METAMORPHIC ROCKS, UNDIFFERENTIATED (Lower to Upper Jurassic)--Mainly quartz diorite, granodiorite, amphibolite, and greenschist.
- Jtk TALKEETNA FORMATION (Lower Jurassic).
- TRVS METABASALT AND SLATE (Upper Triassic)--Intercalated, shallow-water marine sequence.

  TRV BASALTIC METAVOLCANIC ROCKS (Upper Triassic)--Mainly shallow
- water marine metabasalt flows.

  Pzv BASALTIC AND ANDESITIC METAVOLCANOGENIC ROCKS (Pennsylvanian(?) and Early Permian)--Metamorphosed marine sequence of inter-

tic rocks, and subordinate mudstone and limestone.

DSga GRAYWACKE, ARGILLITE, SHALE, AND LIMESTONE (Silurian(?) to Middle

Devonian)--Intercalated marine sequence, probably continental

margin deposits.

layered basaltic to andesitic flows, tuffs, coarse volcaniclas-

# EXPLANATION OF GEOLOGIC MAP SYMBOLS

Contact, approximately located

Approximate contact of surficial deposits

Long dashed where approximately located; short dashed where inferred;

dotted where concealed. U indicates upthrown side where direction

of displacement is known. Arrows indicate relative lateral movement

Thrust fault

Long dashed where approximately located, dotted where concealed.

Teeth indicate upthrown side.

marking a thrust fault

Dotted where concealed; teeth indicate possible upthrown side of postulated thrust

Approximate axis of intense shear zone of variable width, possibly

# REFERENCES CITED

- Csejtey, Bela, Jr., Nelson, W. H., Jones, D. L., Silberling, N. J. Dean, R. M., Morris, M. S., Lanphere, M. A., Smith, J. G., and Silberman, M. L., 1978, Reconnaissance geologic map and geochronology, Talkeetna Mountains quadrangle, northern part of Anchorage quadrangle, and southwest corner of Healy quadrangle, Alaska: U.S. Geol. Survey open-file rept. 78-558-A, 62p.
- Grimes, D. J., and Marranzino, A. P., 1968, Direct-current arc and alternating-current spark emission spectrographic field methods for the semiquantitative analysis of geologic materials: U.S. Geol. Survey Circ. 591, 6p.
- Miller, R. J., Cooley, E.F., O'Leary, R. M., Garmezy, Larry, Csejtey, Bela, Jr., Smith, T. E. and Cleveland M. N., 1978, Analyses of geochemical samples from the Talkeetna Mountains quadrangle, Alaska: U.S. Geol. Survey open-file rept. 78-1052, 279 p.
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APPROXIMATE MEAN

DECLINATION, 1951

In the course of U.S.Geological Survey investigations of the Talkeetna Mountains quadrangle, 1118 stream sediment, 852 heavy mineral concentrate, and 501 rock samples were collected. All of these samples were analyzed for up to 30 elements by a six-step semi-quantitative spectrographic method(Grimes and Marranzino, 1968). Most of the stream sediment and rock samples were also analyzed for up to 4 elements by atomic absorption spectrophotometry, as described by Ward and others(1969). The present map shows the sample collection sites of 1117 stream sediment samples and 852 heavy mineral concentrates which were analyzed for lead by the spectrographic method. Complete analytical data plus location maps, station coordinates, and discussion of sampling and analytical procedures for samples from sites shown on the present map are published in a report by Miller and

EXPLANATORY STATEMENT

concentration of metals in geochemical samples varies for different lithologies and in different areas. Because of this, as well as variability introduced from other sources such as sampling practice, analytical variance, and degree of chemical weathering, it is impossible to select a specific analytical level above which values might indicate the presence of lead deposits. For this reason, the analytical values have been grouped into ranges (see histograms), each range being represented by a different symbol on the map. Higher values may indicate a greater likelihood of lead deposits, but confidence levels are low for "single-element" anomalies and for results which are not supported by neighboring values.

MAP SHOWING GEOCHEMICAL DISTRIBUTION AND ABUNDANCE OF LEAD IN STREAM SEDIMENTS
AND HEAVY MINERAL CONCENTRATES, TALKEETNA MOUNTAINS QUADRANGLE, ALASKA

PERCENT

92.5

PERCENT

0.4

<10 10 15 20 30 50 70 100 150 200

CONCENTRATION

in ppm

95.8

3.2

**<**20 20 30 50 70 100 150 200 300 500 700

CONCENTRATION

in ppm

R. J. Miller, G. C. Curtin, and Béla Csejtey, Jr. 1978

by

MT. McKINLEY

TALKEETNA

TYONEK

sample

GULKANA

ANCHORAGE

Location Index

EXPLANATION OF GEOCHEMICAL MAP SYMBOLS

■ - Location of heavy mineral concentrate

Location of both stream sediment and

∧ - Stream sediment sample with possibly

in symbol size indicates higher

O - Heavy mineral concentrate sample with

possibly significant lead value.

significant lead value. Increase

analytical value as shown on histogram.

Increase in symbol size indicates higher

analytical value as shown on histogram.

heavy mineral concentrate sample

▲ - Location of stream sediment sample